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ABSTRACT

The development of the Depression Proneness Rating Scale (DPRS) and three investigations into its reliability, validity, and factor structure are described. Subjects of all three studies were university undergraduates. The first study (n=100) found a stability coefficient of 0.82 for the DPRS over a test-retest (Time 1-Time 2) interval of 9 weeks. Further, Time-1 DPRS scores predicted Time-2 symptoms of depression independent of Time-1 symptoms. The second study (n=440) found the DPRS to be a better predictor of past depressive episodes than was the Beck Depression Inventory. The third study (n=1,101) found that all 13 items of the DPRS loaded 0.40 or greater on a single factor, and that this factor accounted for 44% of the total variance, more than eight times that of the next closest factor. Separate analyses showed identical factor structures for males and females. Overall, results provide substantial evidence for the DPRS as a valid, unidimensional measure of depression proneness. The DPRS and a 23-item list of references are included. (Author/TJH)

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The Validity and Utility of the Depression Proneness Rating Scale

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Abstract

This paper describes the development of the Depression Proneness Rating Scale (DPRS) and three investigations into its reliability, validity, and factor structure. Study 1, found a stability coefficient of .82 for the DPRS over a test-retest interval of nine weeks. Further, Time-1 DPRS scores predicted Time-2 symptoms of depression independent of Time-1 symptoms (R^2 Change = .03). Study 2 found the DPRS to be a better predictor of past depressive episodes (r = .41 to .47) than was the Beck Depression Inventory (r = .32). Study 3 found that all 13 items of the DPRS loaded .40 or greater on a single factor, and that this factor accounted for 44% of the total variance--more than eight times that of the next closest factor. Separate analyses showed identical factor structures for males and females. Overall, results provide substantial evidence for the DPRS as a valid, unidimensional measure of depression proneness.

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The Validity and Utility of the Depression Proneness Rating Scale

Depression proneness refers to the tendency to experience relatively frequent, long-lasting, and severe depressions. Researchers interested in uncovering the determinants of depression proneness have typically used one of three correlational designs: (1) Correlating the hypothesized determinant with current severity of depression, all measures obtained in a single setting, (2) correlating the hypothesized determinant, measured at time 1, with a measure of depression obtained on some later occasion, or (3) correlating the hypothesized determinant with the subjects past history of depression.

An example of the first approach is a study conducted by Seligman, Abramson, Semmel, & von Baeyer (1979). As predicted by the learned-helplessness model, depressed students made more internal, stable, and global attributions for bad outcomes than did nondepressed students, suggesting that attributional style may contribute to depression proneness. Of course, a major shortcoming of this type of design is that one cannot rule out the equally plausible proposition that attributional style is a consequence rather than a cause of depression (Coyne & Gotlib, 1983). A second shortcoming with this approach is the equating of an individual's current affective state with his or her tendency to become depressed. Although it is reasonable to expect that depression proneness would correlate with an individual's current affective state, this relationship is far from perfect. Not everyone who is depression prone will be depressed during the assessment period, and not everyone

who is depressed will be equally depression prone. Klerman (1980) for example, found that only 60% of those diagnosed as neurotic depressives ever experienced another depressive episode during a four-year follow-up.

An example of the second approach is a study by Metalsky, Halberstadt, and Abramson (1987). These authors found that measures of attributional style taken before an important exam (Time 1) did not predict depressive mood in college students who had just received an unsatisfactory grade on their midterm exam (Time 2) but did predict depressive mood in these students 2 days later (Time 3). A major advantage of this approach over the first is that by adjusting for the effects of depression at Time 1 on depression at Time n, a significant correlation between the hypothesized determinant of depression proneness (attributional style) at Time 1 and depression at Time n can be considered consistent with the proposition that attributional style predisposes to depression, and inconsistent with the proposition that attributional style is merely a consequence of depression. However, other problems remain. In using the subject's affective state at Time n as an indicant of depression proneness, the researcher is, in effect, making an inference about the subject's tendency to become depressed based on a single observation, and as Epstein (1979) has demonstrated, inferences regarding behavioural tendencies that are based on single observations are apt to be high in measurement error and low in temporal reliability or replicability. Metalsky et al.'s (1987) results provide an excellent illustration of this point. If mood had been assessed at T3 but not T2, the attributional style hypothesis would have been fully supported. Conversely, if mood had been assessed at T2 but not T3, the hypothesis would have received no support.

An example of the third approach is a study by Silverman, Silverman, and Eardly (1984). These investigators assessed dysfunctional attitudes in patients with a history of depression when they were symptomatic and again when they were in remission. The logic behind this design is that if dysfunctional attitudes exhibited by the symptomatic depressives are still present when the symptoms of depression have remitted, then these attitudes qualify as possible determinants of depressive vulnerability rather than as correlates or consequences of the depressive episode itself. However, certain aspects of this approach can be problematic. As Lewinsohn, Zeiss, and Duncan (1989) have noted, studies of patient populations are potentially biased by factors related to help-seeking behaviour and treatment. Most depressed individuals do not seek or receive treatment (Roberts & Vernon, 1982; Weissman, Myers, & Thompson, 1981), and those who are treated are likely to be suffering from more severe forms of the disorder (Davies & Blashki, 1974). There is also the possible confounding of remission with the effects of psychotherapy or the effects of psychotropic medications that are typically prescribed for the remitted patients in these investigations (Simons, Garfield, & Murphy, 1984). Another problem appears to be obtaining reliable diagnoses of depression. Some studies (e.g. Cofer & Wittenborn, 1980; Silverman et al., 1984) report selecting their subjects according to the Research Diagnostic Criteria (RDC) or the Diagnostic and Statistical Manual (DSM-II, DSM-III), but do not provide information about the training or interrater reliability of the interviewers making the diagnoses. Yet another problem with this approach involves dichotomizing individuals as depression prone or not depression prone on the basis of whether they have ever received a psychiatric diagnosis of depression. It would seem

more appropriate to consider depression proneness to be a continuous variable and to develop more sensitive and stable measures of this approach. Lastly, many researchers who want to investigate vulnerability factors or risk factors in depression cannot use this approach because they simply do not have access to sufficiently large numbers of formerly depressed patients.

Many of the problems of this third approach could be eliminated if researchers had access to a psychometrically sound and economical measure of depression proneness. To this end, Zemore (1983) has developed a measure of depression proneness that does not rely on current severity of symptoms or past diagnoses of depression. Instead, respondents are asked to indicate the extent to which they experienced a variety of depressotypic symptoms over the past two years. Assuming that each subject's report is based on multiple observations of his or her affective reactions to a variety of situations over the past two years, these self-reports should provide more direct, more sensitive, and more reliable measures of depression proneness than those used in past investigations. Additional advantages of this approach over some of those previously discussed are the ability to treat depression proneness as a continuous variable, the ability to assess large numbers of individuals quickly and economically, the ability to assess a variety of non-patient populations, and when used in conjunction with measures of current affective state, the ability to statistically control (partial out) the influence of current level of depression while assessing the relationship between depression-proneness and other situational or personal variables of interest.

The Depression Proneness Rating Scales (DPRS) were developed by Zemore

(1983; Zemore & Bretell, 1983) to assess an individual's tendency to become depressed. The DPRS-3 has three questions: (1) "Compared to most people you know, how often do you get depressed?," (2) "Compared to most people you know, how long do your depressions last?," and (3) "Compared to most people you know, how deeply depressed do you become?". Each question is accompanied by a 9-point scale, anchored at one end by the descriptor much less often, much shorter, or much less deeply, and at the other end by the descriptor much more often, much longer, or much more deeply. The mid-point of the scale is described as about the same. The DPRS-10 lists 10 of the most commonly assessed symptoms of depression and asks the respondent to rate how frequently, compared to others, he or she has experienced these symptoms over the past two years. Each symptom is accompanied by a 9-point scale, anchored at one end by much less often, and at the other by much more often. The mid-point is described as about the same. Zemore (1983) reported that student scores on the DPRS-3 and an earlier version of the DPRS-10 were significantly correlated with depression-proneness ratings given them by their parents and peers (r = .38 & .41). The DPRS-3 has also been reported to correlate negatively with interpersonal problem-solving skill (r = -.25 to -.32) (Zemore & Dell, 1983).

More recent studies have combined the DPRS-3 and the DPRS-10 into a single 13-item scale, referred to as, simply, the DPRS. Using a 9-point scale for each item, total scores on the DPRS can range from 13 to 117, with higher scores indicating greater vulnerability to depression. Zemore and Rinholm (1989) reported coefficient alpha estimates of reliability for males and females of .88 and .95, respectively. These authors also found that DPRS scores correlated with offspring reports of parental

rejection and overcontrol, independent of the offspring's mood at the time of the assessment. Similarly, Clair and Genest (1987) found children of alcoholic fathers scored significantly higher on the DPRS than children whose parents were nonalcoholic. Zemore and Bretell (1983) found that the DPRS correlated substantially with three personality measures that had previously been found to discriminate between remitted, formerly depressed women and women with no psychiatric history (r = .43 to .55). Zemore and Veikle (1989) found the DPRS to correlate with the Beck Depression Inventory (r = .43), with Lubin's Depression Adjective Checklist (r = .30), and with Weissman's Dysfunctional Attitude Scale (r = .46). The relationship between dysfunctional attitudes and depression proneness remained significant even after controlling for current level depression. Thus, evidence for the reliability and validity of the DPRS is accumulating.

Several questions remain with regard to the psychometric properties of the DPRS. The present paper reports on three investigations that were designed to address some of these questions. Study 1 assesses the stability of DPRS scores and their ability to predict future symptoms of depression, Study 2 assesses the relationship between subjects' DPRS scores and indices of clinical depression, and Study 3 investigates the factor structure of the DPRS.

Subjects in all three studies were university undergraduates. Most were enroled in introductory psychology courses at the time of the study. Participation was voluntary; no external inducements such as course credit or money were offered. All subjects were debriefed immediately following their participation in the study.

Study 1

If the DPRS measures an individual's tendency to become depressed, then respondents' scores on the DPRS should be relatively stable over time, and scores on the DPRS should predict future symptoms of depression.

Method

One hundred men and women undergraduates completed the DPRS and the short form of the Beck Depression Inventory (BDI) both before and after the Christmas holidays. The test-retest interval was approximately nine weeks long. The BDI is one of the most well-validated and commonly used measures of current severity of depression (Bumberry, Oliver, & McClure, 1978). The short form consists of 13 items from the original 21-item inventory (Beck & Beck, 1972). High scores indicate greater symptom severity. Beck, Rial, and Rickels (1974) reported correlations of .96 and .89 between the long and the short forms of the BDI for groups of schizophrenic patients and suicide-attempters, respectively.

Results and Discussion

Our hypothesis that the DPRS scores would show relatively high test-retest stability was confirmed. DPRS scores at Time 1 were highly correlated with DPRS scores at Time 2 (nine weeks later) $r(98) = .82$; $p < .001$. As expected, current severity of depression showed less stability, with BDI scores at Time 1 only moderately correlated with BDI scores at Time 2, $r(98) = .48$; $p < .001$. The difference between these two stability coefficients was statistically significant, $z = 4.41$; $p < .001$. Thus, the greater temporal stability of the DPRS relative to the BDI is consistent with our assumption that respondents are able to consistently assess their depressive

tendencies and that these judgments are, to some degree, independent of the respondent's current affective state. Our hypothesis that DPRS would predict future symptoms of depression was also confirmed. A hierarchical multiple regression analysis found that Time-1 DPRS scores accounted for a significant increase in explained variance in Time-2 BDI scores beyond that explained by Time-1 BDI scores (R^2 Change = .03; F = 4.05; $p < .05$). We should point out, however, that our measure of future symptoms of depression was based on a single observation -- Time-2 BDI score, and, as mentioned earlier, a single observation is not a reliable indicator of how an individual characteristically behaves (Epstein, 1979). A better test of our hypothesis would have been to correlate DPRS scores with the incidence of depressive symptoms at several points in time and in a variety of situations.

Study 2

If the DPRS is a valid measure of depression proneness, then subjects who score high on this measure should be more likely to have a history of depression than subjects who score low.

Method

To test the above hypothesis, 440 University students completed the DPRS, the long form of the BDI, and 4 items that asked about past episodes of depression: (a) "Have you ever been treated for depression by a psychologist, psychiatrist, or other professional counsellor?", (b) "have you ever attempted suicide?", (c) "have you ever had a depression for which medications were prescribed?", and (d) "have you ever been hospitalized for depression?", Each of these items was answered on a 4-point

scale: never (0), once (1), twice (2), three or more times (3).

Of the 440 respondents, 20 (4.5%) reported being treated for depression by a professional counsellor, 16 (3.6%) had attempted suicide, 14 (3.2%) had a depression for which medication had been prescribed, and 10 (2.2%) had been hospitalized for depression. Students who fell into any of the above categories were classified as having a history of depression (n = 35). The remaining students were classified as having no history of depression (n = 405).

Results and Discussion

Our hypothesis that the DPRS would discriminate between these two groups was confirmed, with a significant point-biserial correlation between history of depression (present vs. absent) and DPRS scores (r = .41; p < .001). The relationship between history of depression and BDI scores was also significant (r = .32; p < .001), but significantly smaller than the correlation between history of depression and DPRS scores (t for the significance of the difference between dependent correlations = 2.03; p < .05). Thus, the DPRS was found to be a better predictor of past depressions than the BDI -- as would be expected if the DPRS measures depression proneness and the BDI measures current severity of depression. It should be pointed out that because the DPRS is normally distributed, and the incidence of past depressions is highly skewed, the maximum possible value of r is severely restricted (Cohen & Cohen, 1983; p. 65). If a non-linear transformation is used to skew the distribution of DPRS scores, so that the DPRS distribution more closely resembles the history-of-depression distribution, then the linear relationship between these two variables is increased. For example, squaring DPRS scores skews

their distribution and increases the correlation between the DPRS and past depression from .41 to .48.

Before leaving this section, we should mention that both the DPRS and the history-of-depression measure were based on the subject's self-report. Consequently, we cannot rule out the possibility that the observed relationship between the DPRS and history of depression is due, at least in part, to common method variance. Future research will have to develop more adequate measures of past depressive episodes, independent of subjects' self-reports, in order to better assess the predictive validity of the DPRS.

Study 3

Another question that needs to be addressed regards the dimensionality of the DPRS. According to Nunnally (1978), items within a measure are useful only to the extent that they share a common core--the attribute which is to be measured. In summing item scores to arrive at a total score, it is assumed that each item adds something to the others, and unless the items shared an attribute, it would not be meaningful to sum scores over items. Thus, "the ideal is to obtain a collection of items which has a high average correlation with total scores and is dominated by one factor only" (Nunnally, 1978; p. 274). The purpose of the third study was to determine the extent to which DPRS achieves this ideal.

Method

Subjects were 1101 male (36%) and female (64%) undergraduates. Approximately half the subjects completed the DPRS outside of class in small groups of 5 to 15. The remaining subjects completed the questionnaire during class time in

groups of 200-275.

Results and Discussion

Cronbach's coefficient alpha estimate of the scales reliability was .90. Correlations between each item and total score (minus the item being correlated with the total score) ranged from .39 to .76, with a mean of .61. The magnitude of these item-total correlations suggests the presence of a single common factor. However, for a more definitive assessment of the latent structure underlying the DPRS, the matrix of item intercorrelations was factor-analyzed using principal-factor extraction with multiple R^2 as initial communality estimates. Only one factor with an eigenvalue greater than one emerged from this analysis. The scree test (Cattell, 1978) also indicated a single factor solution; the eigenvalue for the first factor was more than eight times that of the second factor (5.70 vs. .68). Factor I accounted for 44% of the total variance, with all items loading .40 or greater.

Analysis for males and females independently produced identical factor structures. For males, the eigenvalues for the first and second factors were 5.53 and .79, respectively. For females, the eigenvalues for the first and second factors were 5.73 and .64, respectively. In total, the results show that the DPRS is unidimensional. A single score representing depression proneness, therefore, can be obtained by summing over all of the items. Results hold for both males and females. Further research, however, is needed to replicate the factor structure of the DPRS with populations other than university students.

Conclusions

The results of the three studies reported here, together with the earlier research

on the DPRS, provide substantial support for the validity of the DPRS as a unidimensional measure of depression proneness. Consistent with the concept of depression proneness, scores on the DPRS were relatively stable over time, predicted symptoms of depression at Time 2, independent of symptoms of depression at Time 1, and were correlated with past indices of depression. The DPRS was also shown to be dominated by a single factor, with identical factor structures for both males and females. Thus, the DPRS appears to be an accurate and practical means of assessing depression proneness. However, additional validation studies should be conducted using more adequate criterion measures to assess the predictive validity of the DPRS, and sampling populations other than university students.

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DPRS

INSTRUCTIONS: This questionnaire is concerned with your feelings and attitudes over the past two years. Answer each question by circling the appropriate number on the scale below that question. For example, the first question asks how often you became depressed. If, during the past two years, you were depressed about as often as most people, then circle the 5. On the other hand, if you were depressed more often than most people, but not extremely often, then circle one of the numbers between 5 and 9, etc.

Sometimes it is very difficult to know how one's feelings compare with the feelings of others. Just do the best you can. Remember, you are being asked to summarize you feelings and attitudes over the past <u>two years</u>, not just the past few days. Try to avoid being overly influenced by your present mood.

1. Compared to others, how often did you get depressed?

1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7 ____ 8 ____ 9

Much less often — About the same — Much more often

2. Compared to others, how long did your depressions last?

1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7 ____ 8 ____ 9

Much shorter — About the same — Much longer

3. Compared to others, how deeply depressed did you become?

1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7 ____ 8 ____ 9

Much less deeply — About the same — Much more deeply

4. Compared to others, how often did you feel discouraged about the future?

5. ... how often did you feel distant or isolated from people?

6. ... how often did you see yourself as a failure?

7. ... how often did you feel guilty or unworthy?

8. ... how often did you have difficulty concentrating or making decisions?

9. ... how often did you feel tired and lacking energy?

10. ... how often did you feel disappointed in yourself?

11. ... how often did you feel sad or blue?

12. ... how often did you think seriously about suicide?

13. ... how often did you suffer from lack of appetite?